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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|---------------------------|---------------------|------------------|
| 10/738,375 | 12/17/2003 | Trey Allen W. Roessig III | AIMI-01994US0 | 7268 |

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EXAMINER

CHANG, DANIEL D

ART UNIT PAPER NUMBER

2819

DATE MAILED: 04/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/738,375 | W. ROESSIG ET AL. | |
| | Examiner | Art Unit | |
| | Daniel D. Chang | 2819 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,13-15,19,20,23,24,26,27,30 and 31 is/are rejected.
- 7) ☒ Claim(s) 3,6-12,16-18,21,22,25,28 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Acknowledgement

Receipt is acknowledged of the Amendment filed January 27, 2006.

Claim Objections

Claim 31 is objected to because of the following informalities: Claim 31 should depend from claim 30 instead of claim 26 in order to have a clear antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 5, 13-15, 19, 20, 23, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Kong (US 5,859,548).

Regarding claim 1, Kong discloses, in Fig. 5B, an actuation circuit having at least a first output (/D since there is an inherent inverting circuit between D and /D) and a second output (OUT'), and a first input (D), comprising:

a current sink (TR2') coupled to the first output (/D), the current sink enabled when a current is applied to said first input (when D is low); and

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a decision switch (TR1') coupled to the current sink and enabling a current path from the first input (D) to the second output (OUT') only when a voltage present at said first output (OUT') reaches a threshold (low threshold).

Regarding claim 2, Kong discloses, in Fig. 5B, that the first output is coupled to a first force pad (inherent pad connected to /D. Any node coupled to /D in the integrated circuit is broadly interpreted as a pad) and the second output is coupled to a second force pad (inherent pad connected to OUT'. Any node coupled to OUT' in the integrated circuit is broadly interpreted as a pad).

Regarding claim 4, Kong discloses, in Fig. 5B, that the decision switch is a transistor (TR1').

Regarding claim 5, Kong discloses, in Fig. 5B, that wherein the transistor (TR1') has a gate, source and drain, and the gate is coupled to sense the first output (/D).

Regarding claim 13, Kong discloses, in Fig. 5B, an apparatus comprising a control circuit (TR1', TR2') having a first output (/D since there is an inherent inverting circuit between D and /D) and a second output (OUT'), the control circuit, comprising:

an input (D) having a current coupled thereto:

a decision transistor (TR1') coupled to the first output and enabling a current path (from D to OUT') to the second output; and

a current sink (TR2') coupled to the first output.

Regarding the recitation that "a micromechanical mirror structure positioned adjacent to a first and a second force pads" has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the

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portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951).

Regarding claim 14, Kong discloses, in Fig. 5B, that the current sink (TR2') is enabled by said current at said input (D).

Regarding claim 15, Kong discloses, in Fig. 5B, that said current sink (TR2') is enabled by a voltage at the second output (without voltage at OUT', TR2' would not be enabled).

Regarding claim 19, Kong discloses, in Fig. 5B, that the current path is between a first voltage (VDD) greater than zero and a second voltage greater than zero (VDD/2; see col. 9, lines 8+).

Regarding claim 20, Kong discloses, in Fig. 5B, a method comprising:

receiving a control current (D) designated for said first output (/D since there is an inherent inverting circuit between D and /D);

detecting (by drain of TR2') whether an output voltage is present at said second output (OUT');

sinking current (by TR2') second output to ground (Vss); and

steering (by TR1') the control current (D) provided to said first output when said output voltage is below a threshold (low threshold).

Regarding the recitation that "operating a micromechanical mirror having at least a first force pad... and a second force pad... both force pads provided adjacent to the mirror" has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the

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preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951).

Regarding claim 23, Kong discloses, in Fig. 5B, that wherein said step of sinking comprises sinking current (by TR2') responsive to said control current (D).

Regarding claim 24, Kong discloses, in Fig. 5B, that wherein said step of sinking comprises sinking current (by TR2') responsive to an output voltage present at said first output (/D).

Claims 26, 27, 30, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Rovell (US 4,247,791).

Regarding claim 26, Rovell discloses, in Fig. 2, an actuation circuit, comprising:

- a first input (BIT) and a second input (/BIT);
- a first output (14) and a second output (16);
- a first current sink (Q8) coupled to the first output and enabled (when BIT goes low; see first t3 in Fig. 3) by a signal at said first input;
- a second current sink (Q10) coupled to the second output and enabled (when /BIT goes low; see second t3 in Fig. 3) by a signal at said second input;
- a first current steering switch (Q4) enabled by said first output; and
- a second current steering switch (Q3) enabled by said second output.

Regarding claim 27, Rovell discloses, in Fig. 2, that wherein each said output is provided at the drain electrodes of a drain coupled pair of an NMOS high voltage transistor (compare to other low voltage transistors, Q7-Q10 are high voltage transistors) and a PMOS high voltage transistor (Q7, Q8; Q9, Q10).

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Regarding claim 30, Rovell discloses, in Fig. 2, that wherein each said current steering switch is a transistor (Q3, Q4).

Regarding claim 31, Rovell discloses, in Fig. 2, that wherein said current steering transistor is a PMOS transistor (Q3, Q4; col. 2, lines 66+).

Allowable Subject Matter

Claim 32 is allowable over the prior art.

Claims 3, 6-12, 16-18, 21, 22, 25, 28, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the best prior art of record, Kong or Rovell, taken alone or in combination of other references, does not teach or fairly suggest a method or a circuit comprising, among other things, a XXX, as set forth in the claims.

Response to Arguments

Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection.

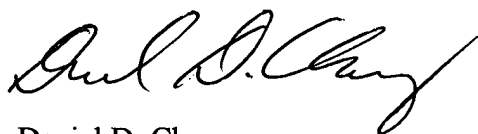
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel D. Chang whose telephone number is (571) 272-1801. The examiner can normally be reached on Monday through Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rexford Barnie can be reached on (571) 272-7492. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel D. Chang
Primary Examiner
Art Unit 2819

dc

DANIEL CHANG
PRIMARY EXAMINER